

Appl. No. : 09/696,836
Filed : October 25, 2000

REMARKS

The foregoing amendments and the following remarks are responsive to the March 4, 2004 Office Action. Claims 1-40 were previously cancelled, Claims 41, 54, 71, and 73-75 are amended herein, Claims 42-44, 52, 55-59, and 67 remain as originally filed, Claims 45-51, 53, 60-66, 68-70, 72, and 76 are cancelled herein without prejudice, and new Claims 77-97 are added. Thus, Claims 41-44, 52, 54-59, 67, 71, 73-75, and 77-97 are presented for further consideration. Please enter the amendments and reconsider the claims in view of the following remarks.

Comments on Objection to Claims 53, 68, 70, 72, and 76

In the March 4, 2004 Office Action, the Examiner objects to Claims 53, 68, 70, 72, and 76 as being dependent upon a rejected base claim, but the Examiner indicates that these claims would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims.

As described herein, Applicants have cancelled Claims 53, 68, 70, 72, and 76, and have added Claims 93-97. Claim 93 rewrites Claim 53 in independent form including all the limitations of base Claim 41 and intervening Claims 44 and 52. Claim 94 rewrites Claim 68 in independent form including all the limitations of base Claim 54 and intervening Claims 54, 55, and 57. Claim 95 rewrites Claim 70 in independent form including all the limitations of base Claim 54 and intervening Claim 55. Claim 96 rewrites Claim 72 in independent form including all the limitations of base Claim 54 and intervening Claims 55, 56, and 71. Claim 97 rewrites Claim 76 in independent form including all the limitations of base Claim 54 and intervening Claims 55, 57, and 75.

Applicants respectfully request the Examiner to pass new Claims 93-97 to allowance.

Response to Rejection of Claims 21-37 and 39 Under 35 U.S.C. § 112, Second Paragraph

In the March 4, 2004 Office Action, the Examiner rejects Claims 21-37 and 39 under 35 U.S.C. § 112, second paragraph for having insufficient antecedent basis. Applicants submit that these claims were previously cancelled by Applicants in the "Replacement Preliminary Amendment" mailed February 13, 2004, which cancelled Claims 1-40.

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Response to Rejection of Claim 41 and 54 Under 35 U.S.C. § 101

In the March 4, 2004 Office Action, the Examiner rejects Claims 41 and 54 under 35 U.S.C. § 101 as claiming the same invention as that of Claims 1 and 2, respectively, of prior U.S. Patent No. 6,212,566 ("the '566 patent").

Applicants submit that Claim 41 does not recite the same invention as Claim 1 of the '566 patent since the two claims are not coextensive in scope. Similarly, Applicants submit that Claim 54 is not coextensive in scope with Claim 2 of the '566 patent. Pursuant to M.P.E.P. § 804:

[a] reliable test for double patenting under 35 U.S.C. § 101 is whether a claim in the application could be literally infringed without literally infringing a corresponding claim in the patent. *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970). Is there an embodiment of the invention that falls within the scope of one claim, but not the other? If there is such an embodiment, then identical subject matter is not defined by both claims and statutory double patenting would not exist.

Claims 1 and 2 of the '566 patent recite limitations not recited in Claims 41 and 54 of the present application. In addition, Claims 41 and 54 of the present application recite limitations not recited in Claims 1 and 2 of the '566 patent. Therefore, Claim 41 of the present application is not coextensive in scope with Claim 1 of the '566 patent and Claim 54 of the present application is not coextensive in scope with Claim 2 of the '566 patent. Applicants respectfully request the Examiner to withdraw the rejection of Claims 41 and 54 and to pass these claims to allowance.

Response to Rejection of Claims 41, 44, 52, and 53 for Obviousness-Type Double Patenting

In the March 4, 2004 Office Action, the Examiner rejects Claims 41, 44, 52, and 53 under the judicially-created doctrine of obviousness-type double patenting as being unpatentable over Claim 1 of the '566 patent.

As described herein, Applicants have amended Claim 41 and have cancelled Claim 53 without prejudice. Applicants submit that amended Claim 41 is patentably distinct from Claim 1 of the '566 patent. Claim 44 depends from amended Claim 41, and Claim 52 depends from Claim 44. Therefore, each of Claims 44 and 52 includes all the limitations of amended Claim 41 as well as other limitations of particular utility. Applicants therefore submit that Claims 41, 44, and 52 are patentably distinct from Claim 1 of the '566 patent.

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Applicants respectfully request that the Examiner withdraw the rejection of Claims 41, 44, and 52 and pass these claims to allowance. Upon indication that Claims 41, 44, and 52 are otherwise allowable, Applicants will consider submitting a Terminal Disclaimer to overcome the rejection for obviousness-type double patenting.

Response to Rejection of Claims 54, 57, 67, and 68 for Obviousness-Type Double Patenting

In the March 4, 2004 Office Action, the Examiner rejects Claims 54, 57, 67, and 68 under the judicially-created doctrine of obviousness-type double patenting as being unpatentable over Claim 1 of the '566 patent. Applicants assume that the citation of Claim 1 is a typographical error and the Examiner is actually citing Claim 2 of the '566 patent. If Applicants are incorrect, clarification is respectfully requested.

As described herein, Applicants have amended Claim 54 and have cancelled Claim 68 without prejudice. Applicants submit that amended Claim 54 is patentably distinct from Claim 2 of the '566 patent. Each of Claims 57 and 67 depends from Claim 55, and Claim 55 depends from amended Claim 54. Therefore, Claims 57 and 67 include all the limitations of amended Claim 54 as well as other limitations of particular utility. Applicants therefore submit that Claims 54, 57, and 67 are patentably distinct from Claim 2 of the '566 patent.

Applicants respectfully request that the Examiner withdraw the rejection of Claims 54, 57, and 67 and pass these claims to allowance. Upon indication that Claims 54, 57, and 67 are otherwise allowable, Applicants will consider submitting a Terminal Disclaimer to overcome the rejection for obviousness-type double patenting.

Response to Rejection of Claims 41-52, 54-67, 69, 71, and 73-75 Under 35 U.S.C. § 102(e)

In the March 4, 2004 Office Action, the Examiner rejects Claims 41-52, 54-67, 69, 71, and 73-75 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 5,742,840 to Hansen et al. ("Hansen"). As described herein, Applicants have cancelled Claims 45-51, 60-66, and 69 without prejudice.

Claim 41

As described herein, Applicants have amended Claim 41 to recite a method for defining a system specification for a heterogeneous digital system. As described by the present specification at page 12, lines 4-11 (emphasis added):

Large and complex systems such as the PMCM DSICs are heterogeneous in nature, from specification point of view, as well as from implementation point of view. The IPC method offers a generic way to connect existing different parts,

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each specified using its own specification paradigm rather than a general unified specification paradigm. This method offers a generic connection of the various implementations (hardware, processors, embedded software, etc) using an efficient, low-power, and robust communication scheme and a suited interface implementation in hardware, or in software or in a mixture of both.

In contrast, Hansen does not disclose the method recited by amended Claim 41. Hansen describes a communication system with a general purpose media processor which communicates with external devices across communication fabrics such as fiber optic cables, coaxial cables, and twisted pair wires. Hansen does not disclose a method for defining a system specification for a heterogeneous digital system. In fact, at column 1, line 38 – column 3, line 47, Hansen teaches away from using heterogeneous digital systems. For example, at column 1, lines 60-61, Hansen discloses that designing a digital processing system using many different kinds of application-specific integrated circuits (“ASICs”) has three fundamental flaws: cost, complexity, and rigidity. Hansen further discloses at column 2, lines 16-47 that the disadvantages of a “heterogeneous multi-processor where each specialized processor has a different and usually eccentric or primitive programming environment” can be overcome by a single unified media processor. Therefore, Applicants submit that Hansen does not disclose the method recited by amended Claim 41 and that amended Claim 41 is patentably distinguished over Hansen.

Claims 42-44 and 52

Each of Claims 42-44 depends from amended Claim 41 and Claim 52 depends from Claim 44. Therefore, each of Claims 42-44 and 52 includes all the limitations of amended Claim 41 as well as other limitations of particular utility. Applicants submit that each of Claims 42-44 and 52 is patentably distinguished over Hansen.

Claim 54

As described herein, Applicants have amended Claim 54 to recite a method for implementing a heterogeneous digital system. For the reasons stated above in relation to amended Claim 41, Applicants submit that Hansen does not disclose the method recited by amended Claim 54 and that amended Claim 54 is patentably distinguished over Hansen.

Claims 55-59, 67, 71, and 73-75

Each of Claims 55, 71, and 73-75 depends from amended Claim 54 and each of Claims 56-59 and 67 depends from Claim 55. Therefore, each of Claims 55-59, 67, 71, and 73-75 includes all the limitations of amended Claim 54 as well as other limitations of particular utility.

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Applicants submit that each of Claims 55-59, 67, 71, and 73-75 is patentably distinguished over Hansen.

Comments on New Claims 77-92

As described herein, Applicants have added new Claims 77-92. For example, new independent Claim 77 recites (emphasis added):

A method for defining a system specification for an integrated circuit, said method comprising:

partitioning said integrated circuit into a plurality of processes, each of the processes having a defined behavior and each of the processes having at least one control thread;

defining separately from said processes a single data independent data communication protocol for communication within said integrated circuit and between said processes;

configuring data communication interfaces in the form of communication input ports and communication output ports for each of the processes of said integrated circuit, the communication ports forming memory free communication channels between said processes of said integrated circuit; and

combining the results of the steps of partitioning, defining and configuring to define specifications for said plurality of processes to form said system specification.

Applicant submits that Claims 77-92 are supported by the original specification (see, e.g., page 11, line 24 – page 15, line 28) so they do not introduce new matter. Applicants further submit that new Claims 77-92 are patentably distinguished over the prior art of record. In particular, in contrast to Hansen which discloses partitioning and communications among separate components coupled by long distance communication fabrics (e.g., fiber optic cables, coaxial cables, twisted pair wires), new Claims 77-92 recite method of defining and implementing an integrated circuit. Furthermore, unlike Hansen, the recited invention of Claims 77-92 advantageously avoids use of memory or storage within the relatively short communication channels of the integrated circuit. Applicants respectfully request the Examiner to pass new Claims 77-92 to allowance.

Summary

For the foregoing reasons, Applicants submit that Claims 41-44, 52, 53-59, 67, 71, 73-75, and 77-97 are in condition for allowance, and Applicants respectfully request such action.

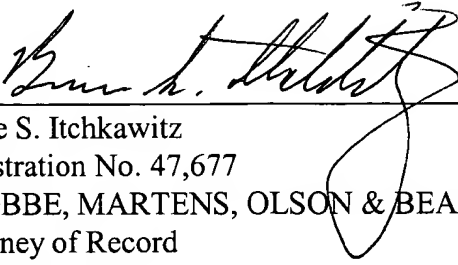
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Respectfully submitted,

Dated: 8/23/04

By:


Bruce S. Itchkawitz
Registration No. 47,677
KNOBBE, MARTENS, OLSON & BEAR, LLP
Attorney of Record
2040 Main Street
Fourteenth Floor
Irvine, CA 92614
(949) 760-0404

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